North Dakota Health Information Network

Health Information Exchange
Implementation

Phased Implementation

- Phase 1
  - Implement “Direct Project”
- Phase 2
  - Implement more robust exchange of data in a test environment
- Phase 3
  - Rollout data exchange statewide

Scope of Services

- Direct
- HIE Infrastructure Installation and Configuration
  - Elysium Server
  - Elysium Master Patient Index (EMPI)
  - Elysium Provider Directory
  - Record Locator Service
  - Elysium Open Access
  - Elysium Security Framework
  - Reference Databases
  - Surescripts/xRX Gateway, connectivity
  - Elysium Virtual Health Record
  - Elysium Fax Server
  - Electronic Medical Record (EMR) – Lite
  - Advanced Directive Repository

HIE Infrastructure

- EdgeServices/IHub
  - Larger facilities will connect via EdgeServers
  - Smaller facilities (clinics) connect with IHub
- VPN
- Interfaces
  - Admission, Discharge, and Transfer (ADT)
  - Laboratory (LAB)
  - Radiology (RAD)
  - Transcription (TRN)
  - Immunizations


"Here ya go!"
"Look what I found!"

Direct Overview

- Many states are leveraging Direct to rapidly enable directed health information exchange to support Meaningful Use

- The Direct Project is a transport solution, not a content solution

- It specifies a set of **standards** and services, that with a policy framework, enable **simple**, **directed**, **routed**, **scalable** transport over the Internet to be used for **secure** and meaningful exchange between known participants

Defining the Direct Project

Secure

- Direct uses industry-standard Public Key Infrastructure to ensure the security of the information being transported

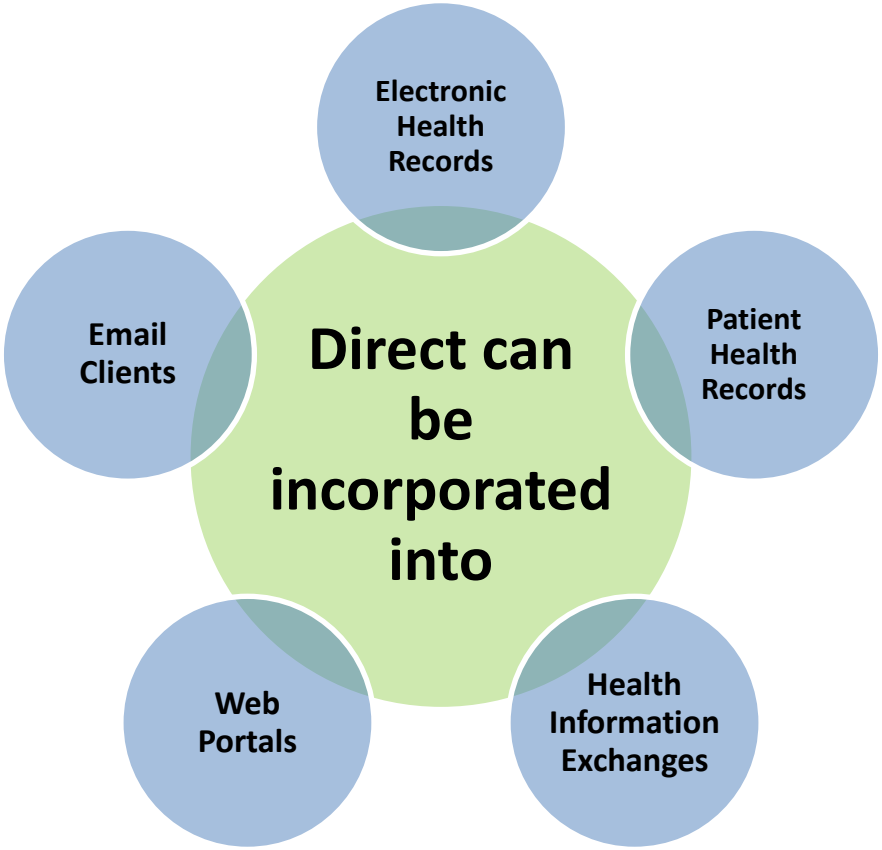
Scalable

- Direct is designed to be easily incorporated into numerous platforms and strategies — such as EHRs, PHRs, and HIEs — to support simple exchange and other advanced functionalities

Standards-based

- Direct uses industry-standard Internet protocols — such as SMTP, MIME, S/MIME, and X.509 certificates

Using the Direct Project

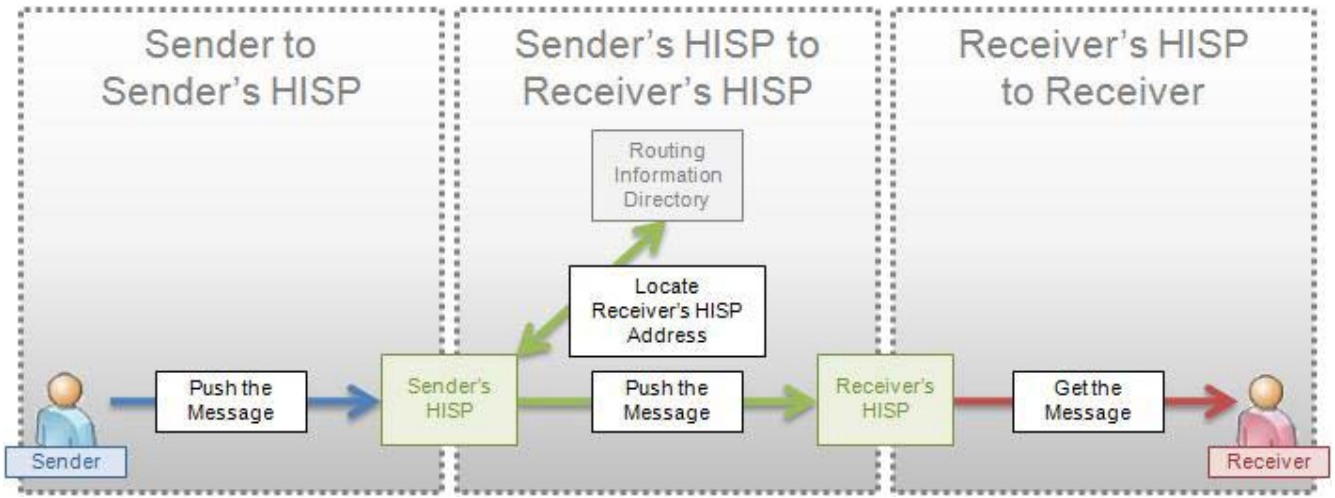


North Dakota Health Information Technology
Quality Healthcare for all North Dakotans - Anywhere, Anytime

What is a Health Information Service Provider (HISP)?

A HISP is in charge of performing a number of services required for the exchange of health information as defined by the Direct Project. These services may be handled by a third party or by the sender/ receiver.

- Provide Direct Addresses (looks like an email address)
- Publish/manage digital certificates
- Encrypt and route Direct messages
- Depending on implementation model (e.g., web portal), possibly store Direct messages



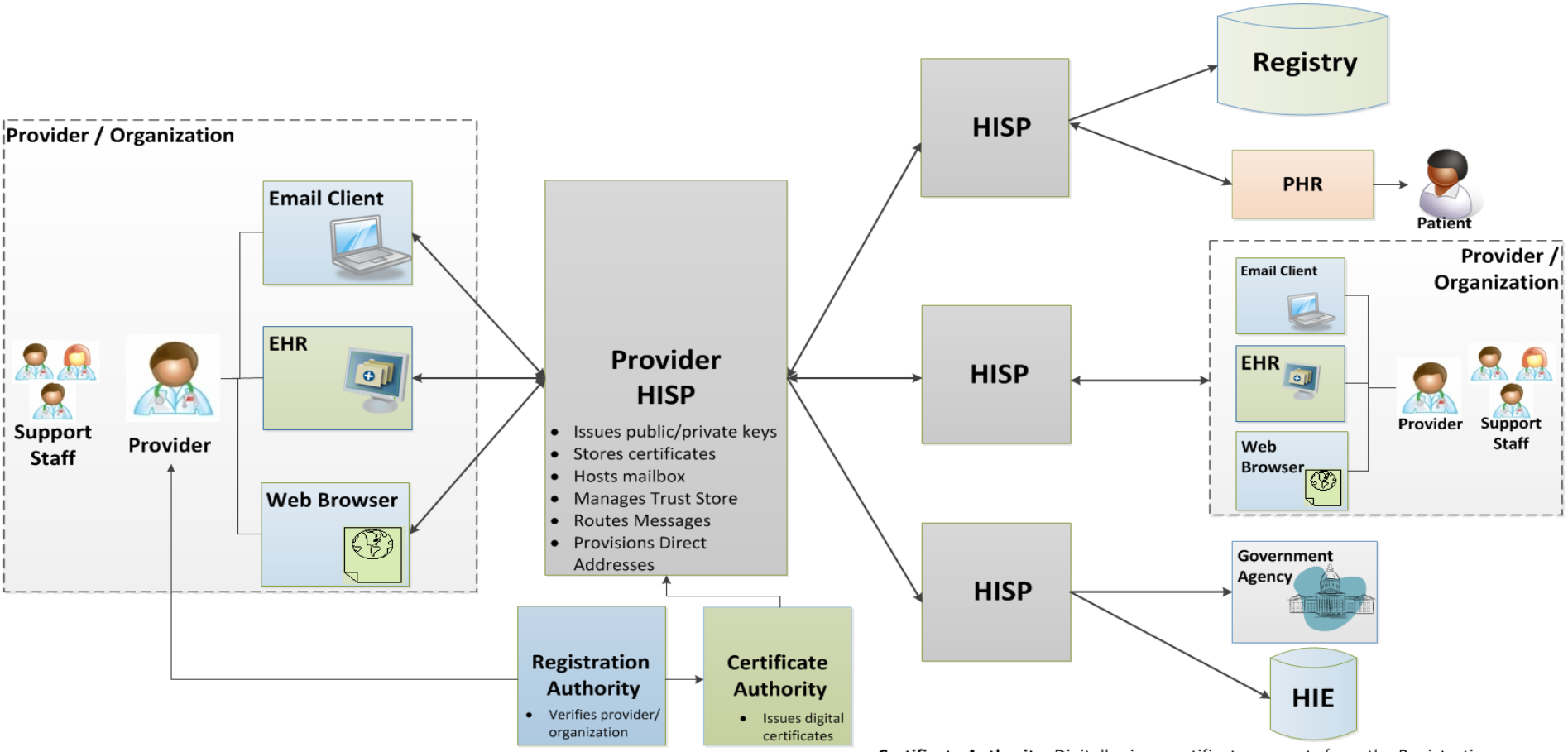
North Dakota Health Information Technology
Quality Healthcare for all North Dakotans - Anywhere, Anytime

Direct Addresses

- Direct Addresses are used to route information
- Look like email addresses
- Used only for health information exchange

- An individual may have multiple Direct Addresses

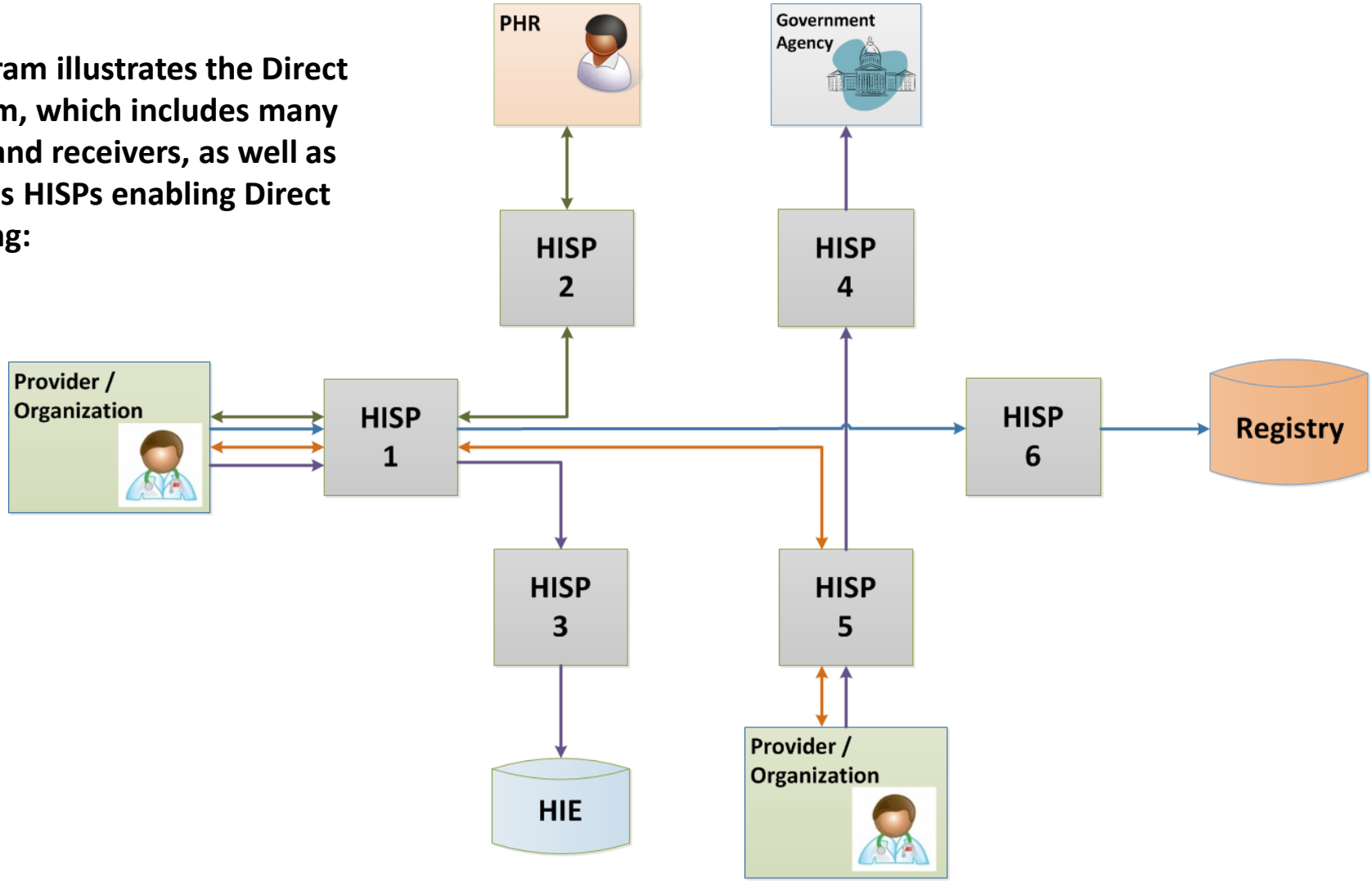
Direct Ecosystem



- **Provider vs. Provider Organization:** Certificates either associated to the hostname part of an address (organizational certificates) @direct.practice.com or to a specific user bob@direct.practice.com
- **Registration Authority**: Collects information for the purpose of verifying the identity of an individual or organization (i.e., identity proofing)
- **Certificate Authority:** Digitally signs certificate requests from the Registration Authority and issues digital certificate that ties a public key to the gathered attributes
- **Digital Certificates:** Electronic document that certifies that the subject (person or entity) has been issued a pair of encryption keys that are related in such a way that if one key is used to encrypt something (e.g., file, message, data stream), it can be decrypted only by someone holding the other key

Direct Ecosystem

The diagram illustrates the Direct Ecosystem, which includes many senders and receivers, as well as numerous HISPs enabling Direct Messaging:



North Dakota Health Information Technology
Quality Healthcare for all North Dakotans - Anywhere, Anytime

HISP-to-HISP Communications

Who needs to trust whom?

- Basic trust inherent in the design of Direct
  - HISPs do not need to trust each other. There are no technical constraints that prohibit HISPs from recognizing and sending data to Direct participants getting services from other HISPs
  - Trust is established between sender and recipient, extended to their agents, the HISP
- State and regional trust networks to simplify sender-recipient trust
  - Rhode Island Trust Community – single RA, single CA, signed certificates
  - Florida statewide HISP – single, free HISP for all providers
- Rules of the Road Workgroup (DirectProject.org)
  - Supports the writing of rules and best practices to which Direct HISPs and Direct Health Identity Providers (HIDPs - Certificate Authorities (CAs) and Registration Authorities (RAs)) would agree in the context of a given community of Direct users / subscribers.

Who is using it?

EHRs

- Amazing Charts
- ApeniMED
- Allscripts
- Quest Diagnostics Care 360
- Cerner Corporation
- eClinicalWorks
- e-MDs
- Epic
- GE Healthcare
- Greenway
- NextGen
- Polaris
- Siemens
- SOAPware

States

- Alabama
- Alaska
- American Samoa
- Arizona
- Arkansas
- California
- Colorado, Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Guam
- Hawaii
- Idaho
- Kansas
- Kentucky
- Louisiana
- Maine
- Massachusetts
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Puerto Rico
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virgin Islands
- Virginia
- West Virginia
- Wisconsin
- Wyoming

HIEs / HISPs

- Ability
- Axolotl
- Harris
- Health-ISP
- Inpriva
- Kryptiq Corporation
- Max.MD
- Medicity
- Mirth
- Secure Exchange Solutions
- Surescripts

PHRs

- Microsoft
- Nomoreclipboard.com
- SmartPHR

The above are examples of vendors (EHRs, PHRs, HIEs/HIPSs) and states that have incorporated or are planning on incorporating the Direct Project protocol into their products/ strategies. Plans may have changed in the interim as of 10/2011.

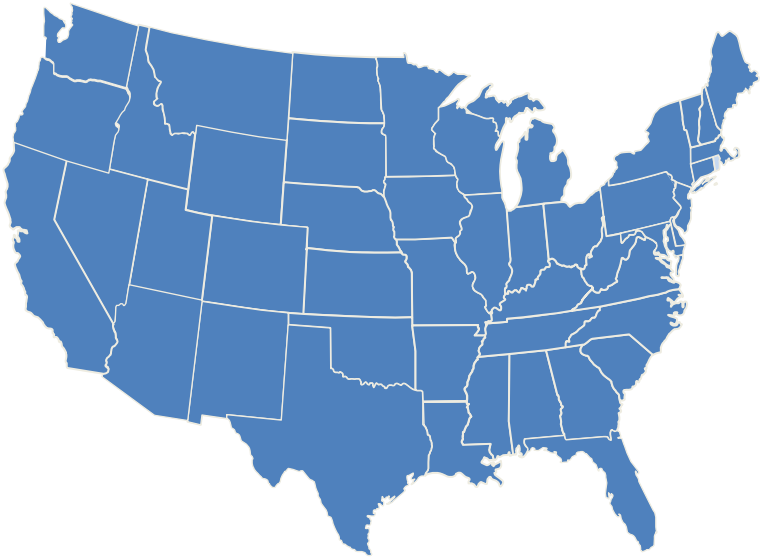
HISP Happens

HISPs are national organizations, not restricted by geography, limited only by the presence of an internet connection

ABILITY

KRYPTIQ

AXOLOTL HEALTHCARE CONNECTED



max.md SECURE COMMUNICATION

HARRIS

MEDICITY

Health-ISP

mirth

Inpriva

surescripts

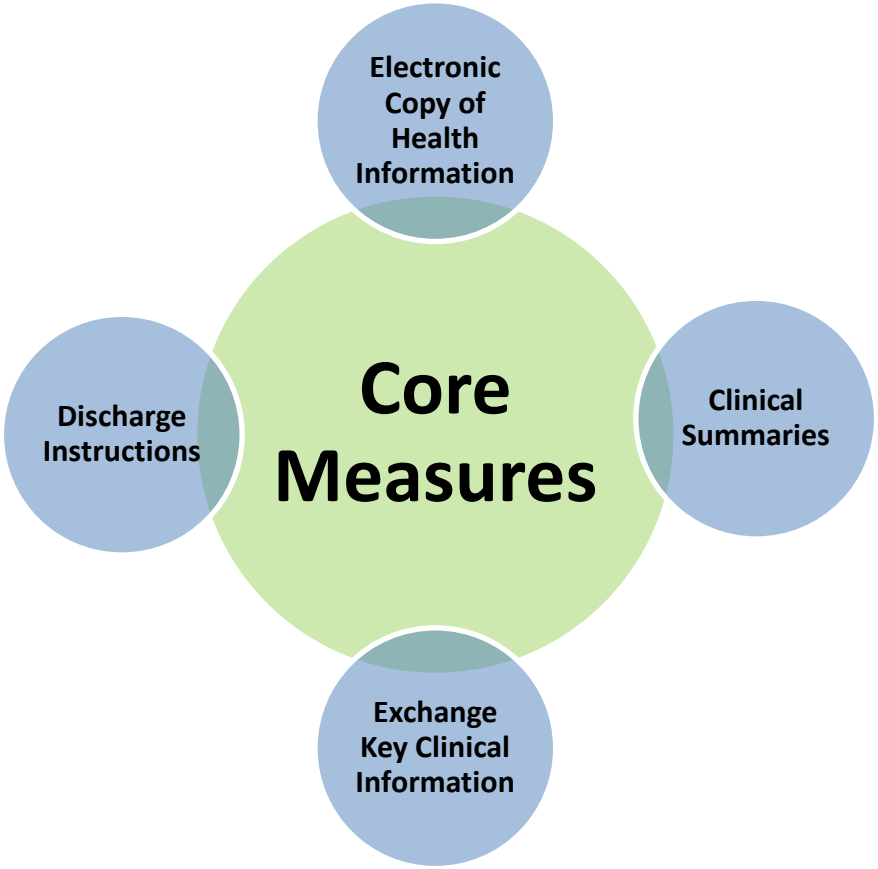
Secure Exchange SOLUTIONS

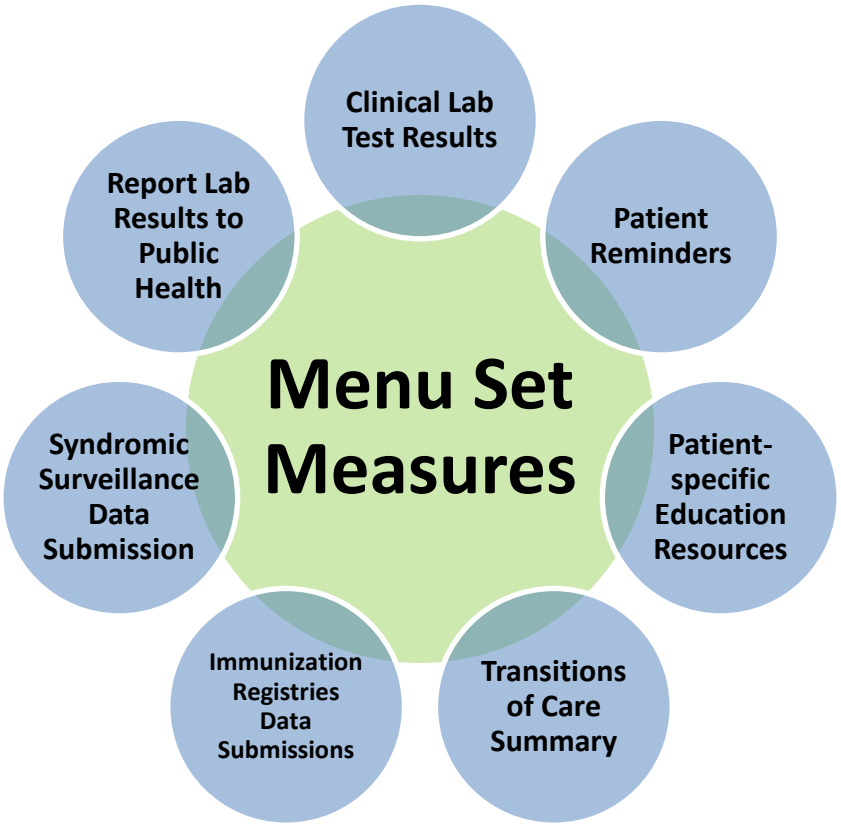
North Dakota Health Information Technology

Quality Healthcare for all North Dakotans - Anywhere, Anytime

Direct and Meaningful Use

The following Meaningful Use core and menu set measures may be met using an implementation of the Direct Project:





North Dakota Health Information Technology
Quality Healthcare for all North Dakotans - Anywhere, Anytime

Defining an RA/CA Strategy

As part of their HIE strategies, states will need to determine whether RA/CA responsibilities will be offloaded to the HISP(s), offered solely by the state (via the HIE, REC, or other entity), or both.

Therefore, a HISP can…

- **Act as RA and CA.** HISP identity proofs during enrollment and issues certificates as appropriate.
- **Act as RA only.** HISP identity proofs during enrollment, passing necessary information to an independent CA. CA provides certificate to HISP upon issuance.
- **Act as CA only.** Independent RA identity proofs during enrollment in HISP, passing necessary information to HISP, which issues certificates as appropriate.
- **Act as neither CA nor RA.** Independent RA identity proofs during enrollment in HISP, passing necessary information to independent CA, which provides certificate to HISP upon issuance.


"Here ya go!"
"Look what I found!"

Elysium Exchange Components

- Framework
  -  – Community/Enterprise Patient Index
  -  – Record Locator Service
  -  – Federated Repositories
  -  – Entity Registration
  -  – Security, Logging, Auditing
- Gateways and Integration Services
  -  – EdgeServers
  -  – Interoperability/EMR Hub
  -  – Other Gateways
  -  – Real-time/Web-services Connections
- Applications
  -  – Integrated practice-based EMR
  -  – Community-wide VHR Clinical Viewer

Advance Directive Repository

- Maintain an AD Repository allowing for access, addition, update and deletion of advance directives so an individual, or their agent, will have access to add, change, or delete an advance directive
  - Initial Load
  - EdgeServer
  - Provide as an embedded document (PDF) via HL7
    - Send via Direct
- Available in Virtual Health Record Patient Summary

Immunization Gateway

- Build bi-directional interface between the NDHIN and the ND Immunization Information System (NDIIS)
  - Immunizations available for real-time query via the NDHIN Virtual Health Record
  - NDHIE will accept and route VXU messages from participating entities to the NDIIS

Patient Health Record (PHR) Gateway

- NDHIN will enter into agreement with Microsoft Healthvault
  - PHR Gateway will facilitate data exchange between the NDHIN and MS Healthvault
  - Patients that have Healthvault accounts can receive
    - Copies of their medical records
      - Hospitals
      - Out-Patient Clinics
      - Labs
- Statewide effort to collaborate on a ND PHR

Public Health Reporting Service

- De-identified syndromic surveillance results
- Electronic Lab Reporting

Inter-HIE Gateway, NwHIN

- Connectivity to other State Health Information Exchanges
  - Minnesota
  - South Dakota
  - Arizona
- Connectivity to other Health Information Exchanges
  - Organizations with their own HIE
- Connectivity to Nationwide Health Information Network (NwHIN)
  - When operational, the NwHIN connection will largely eliminate the need to have Inter-HIE Gateways

Elysium Image Exchange

- Enables authorized users to view and manipulate fully diagnostic quality DICOM images from heterogeneous PACS throughout the medical trading area with a unified viewer, all from within the context of their patients' medical records as a part of their everyday workflow.
- A given radiology report having a corresponding image will allow the user to launch this viewer.
- A patient's most recent X-Ray, Ultrasound, CT, MR, PET images and a broad range of other modalities will be made available, along with a full range of diagnostic tools including 3D volume rendering etc.
- Note that Imaging exams will be retained in a centralized cache for 30 days to maximize performance for the most frequently-accessed images, while other images will be retrieved in the background by the image exchange service from their respective PACS locations.

Independent Lab Gateways

- Receive and deliver results from Independent Lab Providers, such as LabCorp and Quest

EMR Lite

- NDHIN can provide fully-functional, certified, Clinical EMR-Lite, with Meaningful Use Reports
  - Axolotl EMR Lite
  - Caretracker

Hosting and Management Services,
Software and Support

- Hosting
- State (HIE) data
- State (HIE) Obligations
- Telecommunications and Internet Services
- Hosted System – Service Level Requirements
- Scheduled/Emergency Maintenance
- Standard Technical Support
- Tier 1 Support
- Backups

Hosting

- HIE Infrastructure will be hosted at Axolotl's Data Center

Timelines

- Contract Signature: November 2011
- “Direct” ready for users: December 2011
- Phase 2: January 2012

Contact Info

Chad Peterson

chapeterson@nd.gov

701-328-1955

701-330-2314

http://www.healthit.nd.gov/medicaid

Twitter: chadpeterson84

North Dakota Health Information Technology

Quality Healthcare for all North Dakotans - Anywhere, Anytime

Appendix:
Meaningful Use Examples (Direct)

Meaningful Use Core Measures

Name	Measure Description	Example
Electronic Copy of Health Information (Eligible Providers and Hospitals)	Upon request, provide patients with an electronic copy of their electronic health information.	State: Connecticut User Interface: PHR (Microsoft HealthVault Message Center) HISP: Quest/MedPlus Description: Connecticut will be using the Direct Project to send health information electronically to their patients' Microsoft HealthVault account. Other States: California
Clinical Summaries (Eligible Providers)	Provide patients with a clinical summary (i.e., after-visit summary) for each visit.	State: Arizona User Interface: PHR (Microsoft HealthVault Message Center) HISP: AzHISP is developed by Techsant Description: Ability to send health information to patients using Microsoft HealthVault Other states: Indiana, Georgia
Exchange Key Clinical Information (Eligible Providers and Hospitals)	Capability to exchange key clinical information among providers of care and patient authorized entities electronically.	State: Rhode Island User Interface: Webmail HISP: Various (Inpriva, Ability, MedAllies) Description: Using the Direct Project to exchange key clinical information among providers of care (e.g., Exporting a CCD from an EHR, attaching it to a Direct message composed via a webmail and sending over to another provider who opens the CCD and imports into EHR) Other States: Florida, New York, Tennessee, Connecticut
Discharge Instructions (Hospitals)	Upon request, provide patients with an electronic copy of their discharge instructions at time of discharge.	

Meaningful Use Menu Set Measures

Name	Measure Description	Example
Clinical Lab Test Results (Eligible Providers only)	Incorporate clinical lab test results into EHR as structured data.	State: California User Interface: EHR (Centricity) HISP: Redwood MedNet Description: Push lab test results from McKesson Hospital to a specialist practice using Centricity EHR Other States: Florida, Connecticut
Patient Reminders (Eligible Providers)	Send reminders to patients per patient preference for preventive/follow-up care.	
Patient-specific Education Resources (Eligible Providers and Hospitals)	Use logic built into certified EHR to identify patient-specific education resources and provide those resources to the patient.	
Transition of Care Summary (Eligible Providers and Hospitals)	Should provide summary of care record for each transition of care (movement from one transition of care to another) or referral. Can be an electronic or paper copy of the summary of care.	State: New York User Interface: EHR (Allscripts, NextGen, eCW, Epic) HISP: MedAllies Description: Currently working with numerous EHR vendors and Hospital System vendors to integrate Direct technology into their platform in order to enable the exchange of clinical information (including summary of care records) across transitions of care Other States: Wisconsin, Rhode Island, Oregon

States planning to use Direct for lab results:

Alaska, American Samoa, Arizona, Arkansas, California, Connecticut, District of Columbia, Florida, Georgia, Guam, Hawaii, Illinois, Kentucky, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New York, North Carolina, North Dakota, Ohio, Oklahoma, Puerto Rico, Rhode Island, South Dakota, Virgin Islands, Virginia, West Virginia, Wisconsin, Wyoming

Meaningful Use Menu Set Measures

Name	Measure Description	Example
Immunization Registries Data Submissions (Eligible Providers and Hospitals)	Capability to submit immunization data to immunization registries or immunization information systems.	State: California User Interface: EHR (NextGen) HISP: Redwood MedNet Description: Using the Direct Project to send Immunization Records from Northeastern Rural Health Clinics to the California Immunization Registry (CAIR) Note: If using required HL7 standard and implementation specifications State: Minnesota User Interface: HISP: Ability Description: Hennepin County Medical Center is sending immunization data to the Minnesota DOH Immunization Registry Note: If using required HL7 standard and implementation specifications
Report Lab Results to Public Health (Hospitals)	Capability to submit electronic data on reportable lab results to public health agencies and actual submission according to applicable law and practice.	Note: If using required HL7 standard and implementation specifications
Syndromic Surveillance Data Submission (Eligible Providers and Hospitals)	Capability to submit electronic syndromic surveillance data to public health agencies and actual submission according to applicable law and practice.	Note: If using required HL7 standard and implementation specifications